Combinatorial Optimization

Parallel Simulated Annealing

Simulated Annealing (SA) is a meta-heuristic applicable to nearly arbitrary combinatorti optimization problems. SA is a randomized local search strategy which is able to perfor moves. Thus, it may escape from local minima and find solutions which are much bette those of pure local search.

The performance of SA depends heavily on the choice of parameters and on the way th is coded. The parameters (the *cooling schedule*) determine the number of steps (i.e. tir algorithm performes. Usually, a large number of steps are necessary in order to find rea good solutions.

We developed a scheme for parallelizing SA which is independent of the problem itself. scheme is based on parallelizing the search process. Each processor receives the whol instance and performes search moves. The decision whether a move is accepted or no by a central processor (in the simples version called *One-Chain*). The algorithm achieve performance from the fact that - at low temperatures - nearly all moves are not accepte thus, independent of each other.

For more information, please contact Georg Kliewer or look at the Parallel Simulated Ar Library.

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